

AI-06 - As-Built and GIS Data for Networks and New Developments

Ver.1.3

Date: October 2016

1. Scope

This standard outlines the data capturing requirements when constructing new pipelines and structures or when alterations are made on existing Watercare network facilities.

For network capital works completed by Watercare, Blackbox 22 is compulsory. Watercare provides the licence, training and support for its use on Watercare projects. Contact Watercare Asset Systems for more information.

Red line drawings shall signed by the engineer responsible for the supervision of the works and made available before any commissioning work, temporary tie-ins or progressive livening of infrastructure that will become operational for control by Watercare. Any progressive alterations to the design shall be marked-up and supplied to Watercare through the course of the works. On completion of the works final as-builts shall be produced.

Where any external party constructs new developments or subdivisions not contracted to Watercare the final as-builts in CAD shall be supplied before the assets are connected and vested to Watercare.

In some cases, i.e. pumping stations, the specific as-built requirements and sequence of supply of this information may require more detail. In these circumstances, the specific requirements over and above this standard will be identified by the related standard.

As-built information shall be confirmed as complete and accurate by a Registered Professional Surveyor or Chartered Professional Engineer.

2. Format

Watercare require all final as-built information in the following format:

- Digital CAD file (DWG file format in model space).
- A coordinate schedule of point assets (non-linear) in Excel file format.
- PDF (original).
- Coordinates to be in New Zealand Transverse Mercator (NZTM) Projection – accuracy 0.05m.
- Levels to be in orthometric heights related to Auckland 1946 Height Datum – accuracy 0.01m.

Note: Watercare will in future require all as-built plans to be provided in a standardised CAD layering format – this format is under development and will be made available for use when completed.

3. As-Built Plans need to show as a minimum:

3.1 General

- North point.
- Legal boundaries, legal descriptions of parcels, road names and property address numbers.
- Project name/plan title.
- Drawing number.
- Produce plans at a suitable scale for clarity. Show a separate service per plan if necessary. Use general notes to reduce clutter on plans.
- Note Datum on plan (all levels are to be in Orthometric Heights related to Auckland 1946 Height Datum ; all coordinates to New Zealand Transverse Mercator (NZTM) Projection)).
- Wastewater – coloured red.
- Water – coloured blue.
- Existing assets to be identified clearly as “Existing”.
- Private assets to be identified clearly as “Private”.
- Removed assets to be identified clearly as “Removed”.
- Abandoned assets to be identified clearly as “Abandoned”.

- Found assets (not shown on existing records) to be identified clearly as “Found”.
- Connections to existing networks.
- Date of installation.
- Certification of accuracy and completeness by a Chartered Professional Engineer or Registered Professional Surveyor.

3.2 Water supply

3.2.1 Pipes

- Nominal bore (NB) for all PE and steel pipe or Nominal diameter (DN) for other pipe material, material type, length and class of pipes laid including road crossings and house connections
- Note: For labelling of pipes use general notes where possible e.g. All Water Supply pipes are 110 PE100 PN12.5 SDR13.6 unless noted otherwise.
- Bends (angle) or change of direction to be coordinated.
- Pipes removed, abandoned or found.

3.2.2 Fittings

- Valves (noted for type), hydrants, tees, branches, reducers, backflow devices, thrust blocks, blank caps, meters etc. Show enlarged details where necessary.
- Fittings removed, abandoned or found.

3.2.3 Service connections

- Nominal diameter, material type, length and class of pipes laid.
- Service connections removed, abandoned or found.

3.3 Wastewater

3.3.1 Pipes

- Nominal bore (NB) for all PE and steel pipe or Nominal diameter (DN) for other pipe material, material type and class of pipes laid, length, direction of flow, bedding & backfill type and if directional drilled.
- Note: For labelling of pipes use general notes where possible e.g. All Wastewater pipes are PVC SN16 unless noted otherwise. Alternatively use this format: 150 PVC SN16 “and length” 160 PE80B SDR17 “and length”.
- Pressure/rising mains and siphons (nominal diameter, material type, class of pipes laid, length, position, bends, levels, anchor/thrust blocks, flushing valves & air valves).
- Encased protected pipes (position, length & type of protection).
- Pipes removed, abandoned or found.

3.3.2 Structures and Fittings

- Manhole cover level (LL) and invert level of inlet and outlet pipe (IL); invert level of drop connections.
- Label non-standard manholes with diameter and type.
- Location and extent of pump stations, inspection chambers, dry chambers, blank caps/plates and any other node point e.g. valves (PWC systems).
- Structures removed, abandoned or found.
- Fittings removed, abandoned or found.

3.3.3 Service connections for gravity pipe

- Nominal diameter, material type, length and class of pipes laid.
- Show connection length of pipe to main in accordance with the point of supply.
- A connection greater than 5.0m in length should be coordinated and invert levels provided.

- Service connections removed, abandoned or found.

3.3.4 Service connections for pressurised pipe

- Nominal diameter, material type, length and class of pipes laid.
- For connection boundary kits connecting to a pressurised system show the distance from the centre of the boundary kit box cover to the connection point on the main pipe. Provide length of pipe.
- For connection boundary kits connecting into a gravity system show the distance from the centre of the downstream manhole cover to the centre of the boundary kit box cover. Provide length of pipe.
- For connection into a vacuum system (Kawakawa Bay only) show the distance from the vacuum valve in the onsite vacuum vault to the main pipe.
- Service connections removed, abandoned or found.

3.4 Plant

3.4.1 Treatment Plants, pump stations

- Site & plant layout plans, wiring diagrams, and pipework details. Fully itemised parts inventory including technical data, serial numbers, costs, and manufacturer.
- O&M Manuals.
- Disposed assets identified.
- Details shall comply with AI-01 As-built and GIS Data for Pipelines and Structures.